67,010-096
PA-004.02755-US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|---|---|
| Applicant: | James Weldon |
| Serial No.: | 10/825,059 |
| Filed: | 04/15/2004 |
| Group Art Unit: | 2836 |
| Examiner: | Patel, Dharti Haridas |
| Title: | AUTOMATIC MOTOR OUTPUT-TO-INPUT POWER CALCULATOR |



## APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appellant now submits its brief in this appeal. The Commissioner is authorized to charge Deposit Account No. 08-0385 in the name of Hamilton Sundstrand Corporation in the amount of $500.00, as well as for any additional fees or credit the account for any overpayment.

**Real Party in Interest**

Hamilton Sundstrand Corporation is the real party in interest. Hamilton Sundstrand Corporation is a business unit of United Technologies Corporation.

**Related Appeals and Interferences**

There are no related appeals or interferences.

**Status of the Claims**

Claims 1-20 are pending and on appeal. Claims 1-20 stand rejected under 35 U.S.C. §103 based upon the published U.S. application no. US-2004/0090195 (the *Motsenbocker* reference).

## Status of Amendments

There are no unentered amendments.

## Summary of Claimed Subject Matter

The claims on appeal include independent claims 1, 8 and 16. Each of those claims are reproduced here for convenience.

1. A motor controller comprising:
an interface for manually entering values of a motor output;
an input power setting determining module that automatically determines a motor input power setting based upon entered motor output values; and
a display portion that provides a visual display of the determined motor input power setting.

8. A machine assembly comprising:
a motor having associated values of motor output;
a device driven by said motor;
an input power setting determining module that automatically determines a motor input power setting, using the associated motor output values; and
a display portion that provides a visual display of the determined motor input power setting.

16. A method of determining a motor input power setting comprising the steps of:
receiving values of a motor output including at least one of a motor rating value or a motor efficiency value; and
automatically determining a motor input power setting based upon the received values of motor output.

An example arrangement upon which these claims read is schematically shown in Figure 1 which includes a machine assembly 6, a motor controller 10 that automatically determines a motor input power setting and an interface 14 for manually entering values of a motor output. An input power setting determining module 18 automatically determines a motor input power setting based upon entered motor output values. A display portion 22 provides a visual display of the determined motor input power. (Paragraph 14, page 2, lines 23-28)

In a described example, the input power setting determining module 18 uses motor output values such as a motor rating or motor efficiency for automatically determining a motor input power setting. In one example, an individual user manually determines the motor rating and motor efficiency in a known manner, such as consulting a printed manual or on a label on the motor 26. The user manually enters the motor output values into the controller 10, using the interface 14. The input power setting determining module 18 receives the motor output values and automatically determines the motor input power setting. (Paragraph 17, page 3, lines 7-13)

For example, the input power setting determining module 18 may utilize an equation to determine the motor input power setting in kilowatts based upon a motor output power expressed in horsepower divided by a motor efficiency percentage multiplied by a selected constant. The user of the system may use the determined motor input power setting to set the controller 10 for controlling the actual motor performance as appropriate. In one example, the controller 10 automatically uses the determined input power setting unless the user provides a different setting. (Paragraph 18, page 3, lines 14-22).

**Grounds of Rejection to be Reviewed on Appeal**

Claims 1-20 stand rejected under 35 U.S.C. §103 as being unpatentable over the published U.S. application no. 2004/0090195 (the *Motsenbocker* reference).

**ARGUMENT**

There is no *prima facie* case of obviousness against any of Applicant's claims. The Examiner's interpretation of the reference is inconsistent with what the reference actually teaches. Moreover, the Examiner provides absolutely no explanation for how the reference should be modified to render it consistent with Applicant's claims. As will become apparent, there is no

reasonable or permissible modification to the *Motsenbocker* reference that would make it consistent with Applicant's claims.

**The rejection of Claims 1-20 under 35 U.S.C. §103 based upon the *Motsenbocker* reference must be reversed.**

The Examiner improperly contends that the *Motsenbocker* reference includes various limitations of Applicant's claims. For example, the Examiner contends that the *Motsenbocker* reference includes an input power setting determining module consistent with Applicant's claims. The Examiner relies upon paragraphs 32 and 95 in this regard. Paragraph 32 pertains to estimating an expected propeller slip on a boat that uses an electric motor for rotating a propeller and adjusting power to the motor to achieve a desired propeller slip. This does not correspond to the input power setting determining module of Applicant's claims.

A propeller slip is not a motor output value that would be entered and used by an input power setting determining module as recited in Applicant's claims. The propeller slip of the *Motsenbocker* reference is not reasonably interpreted as a motor output value. Even if it were, it is never manually entered into an interface as recited in claim 1.

The propeller slip cannot be one of the values of motor output associated with the motor of claim 8 because claim 8 recites a separate device driven by the motor. The propeller of the *Motsenbocker* reference would have to correspond to that driven device, if anything. The propeller slip would be associated with the device, therefore, and cannot be interpreted as a value of motor output.

The propeller slip of the *Motsenbocker* reference also cannot correspond to the motor rating value or motor efficiency value of claim 16.

One problem with the Examiner's interpretation of the *Motsenbocker* reference is that the Examiner ignores *Motsenbocker's* actual teachings regarding propeller efficiency and motor

efficiency. The *Motsenbocker* reference clearly separates the efficiency of a motor on the one hand and the efficiency of a propeller on a particular boat at a given speed on the other hand. For example, in paragraph 7, lines 14-17, the *Motsenbocker* reference mentions two different types of efficiency, one of them being motor efficiency and the other being "propulsion efficiency." In paragraphs 88 and 89, additional comments are made that distinguish between a motor efficiency value and the efficiency with which a propeller operates. "Regardless of the propeller size, the power needed to drive the propeller increases more than linearly with increase in shaft RPM. ***In contrast***, a typical motor power output increases less than a linear rate...At engine power versus RPM ratios higher than for an ideal match, the engine can produce more power than the propeller can absorb and the propeller will either speed up to create greater slippage in the water and waste energy ***or the motor*** will draw less current at the same RPM, and ***will operate outside of its maximum efficiency power band.***" (Paragraph 88, lines 9-13 and paragraph 89, lines 1-7, emphasis added)

It is improper and unreasonable to interpret the *Motsenbocker* reference in a way that goes contrary to the express teachings of that reference. The Examiner cannot take propeller slip and interpret that as a motor output value when the *Motsenbocker* reference recognizes and expresses a difference between the motor power output and the propeller output or operation such as slip. The Examiner's interpretation of the reference is inconsistent with the express teachings of the reference and cannot establish a *prima facie* case of obviousness.

There is nothing within the *Motsenbocker* reference that corresponds to the input power setting determining module of Applicant's claims 1 and 8 and nothing that corresponds to the receiving and automatically determining steps of Applicant's claim 16. The Examiner does not provide any indication of how those missing portions of Applicant's claims would somehow be

found in some sort of modification of the *Motsenbocker* reference. This is not surprising because the Examiner improperly finds them within the reference even though that conclusion is directly contrary to the reference and ignores the express limitations of Applicant's claims. Without these missing portions of Applicant's claims, there is no *prima facie* case of obviousness.

Additionally, there is nothing in the *Motsenbocker* reference that corresponds to the display portion that provides a visual display of the determined motor input power setting from Applicant's claims 1 and 8. The Examiner improperly contends that paragraphs 41 and 117 teach such a display in the *Motsenbocker* reference. Paragraph 41 describes an indicator of "an electric boat propeller efficiency." An indication of propeller efficiency cannot be the same as an indication of a determined motor input power setting. First of all, the propeller efficiency would be, at best, some sort of output value and not an input power setting value. Moreover, as already mentioned, the propeller efficiency and the motor values are recognized as being distinct from each other in the *Motsenbocker* reference. There is nothing that displays motor input power settings anywhere within the *Motsenbocker* reference.

It appears that the Examiner is taking the comments of paragraph 42 which describes two "electrical inputs" that are used in a visual display system out of context to somehow construe paragraph 41 to be like Applicant's display portion. An electrical input of the type described in paragraph 42, however, is not the same as a motor input power setting. Paragraph 42 of the *Motsenbocker* reference describes a propeller rotational speed electrical input and a comparison signal electrical input. The visual indicator of paragraph 42 does not indicate either of those signals, neither of which is a motor input power setting. Instead, it supplies a visual indication of propeller efficiency, which is based upon some determination using the propeller rotational speed and the comparison signal. Propeller efficiency cannot be the same thing as a motor input power

setting without completely ignoring the express teachings of the *Motsenbocker* reference. Such an interpretation of the reference is unreasonable and cannot establish a *prima facie* case of obviousness.

Additionally, paragraphs 152 and 167-170 make it clear that the "electrical inputs" are not the same thing as what is displayed nor are they the same as motor input power settings. Paragraph 152 of the *Motsenbocker* reference indicates that the boat operator receives some indication of the slip condition. Paragraph 167 indicates that the propeller speed signal is obtained by a Hall effect sensor, which would have to be used to monitor the actual rotation of the propeller. That cannot be considered a motor input power setting, nor is that particular speed displayed in the *Motsenbocker* reference. Instead, as indicated in paragraph 168, a boat speed signal is subtracted from the propeller speed signal and that difference is used as an absolute slip signal for an analog slip meter. Providing a visual indication of propeller slip in the *Motsenbocker* reference is not the same thing as providing a visual display of a determined motor input power setting.

The Examiner also points to paragraph 117 of the *Motsenbocker* reference as allegedly disclosing such a display. What is actually being displayed in paragraph 117 is "the amount of time left for overspeed" in a situation where the availability of overspeed operation is limited. That has nothing to do with displaying a determined motor input power setting and does not in any way help to establish a *prima facie* case of obviousness.

There is nothing within the *Motsenbocker* reference that corresponds to the visual display of Applicant's claims 1 and 8.

With regard to claim 16, there is nothing about either of the recited steps of claim 16 mentioned or in any way suggested by the *Motsenbocker* reference. There is no use of a motor rating value or a motor efficiency value for determining a motor input power setting as recited in

claim 16. The Examiner confuses propeller efficiency with motor efficiency and has failed to establish a *prima facie* case of obviousness.

Many of Applicant's dependent claims include further limitations that cannot be found in the *Motsenbocker* reference and for which there is no basis for modifying the *Motsenbocker* reference to somehow include such features. For example, there is no use of a motor output comprising a motor rating value or an external current transformer value as recited in claims 2 and 4, respectively. There is nothing in the *Motsenbocker* reference that corresponds to using a motor output comprising a motor rating value as recited in claim 9.

The *Motsenbocker* reference does not disclose a pump as recited in claim 11. The Examiner somehow interprets a boat motor as a pump when that seems completely inconsistent with the normal understanding of those words.

Other portions of the Examiner's interpretation of the *Motsenbocker* reference for purposes of rejecting the remaining claims are equally unreasonable either because they are based upon the errors mentioned above or they include further errors of interpretation of the reference.

RECEIVED
CENTRAL FAX CENTER
MAY 29 2007



## CONCLUSION

There is no *prima facie* case of obviousness. The reference does not support the Examiner's interpretation and there is no basis for modifying the teachings of the reference to somehow render it consistent with Applicant's claims. The rejection of claims 1-20 under 35 U.S.C. §103 must be reversed.

**Respectfully submitted,**

**CARLSON, GASKEY & OLDS, P.C.**

May 29, 2007
**Date**

**David J. Gaskey**
Registration No. 37,139
400 W. Maple, Suite 350
Birmingham, MI 48009
(248) 988-8360

**CERTIFICATE OF FACSIMILE**

I hereby certify that this Appeal Brief, relative to Application Serial No. 10/825,059, is being facsimile transmitted to the Patent and Trademark Office (Fax No. (571) 273-8300) on May 29, 2007.

Theresa M. Palmateer

## APPENDIX OF CLAIMS

1. A motor controller comprising:

an interface for manually entering values of a motor output;

an input power setting determining module that automatically determines a motor input power setting based upon entered motor output values; and

a display portion that provides a visual display of the determined motor input power setting.

2. The motor controller as recited in claim 1, wherein said values of motor output comprise a motor rating value.

3. The motor controller as recited in claim 1, wherein said values of motor output comprise a motor efficiency value.

4. The motor controller as recited in claim 1, wherein said values of motor output comprise an external current transformer value.

5. The motor controller as recited in claim 1, including a trip module that automatically interrupts power to the motor responsive to an actual motor input power exceeding a motor input trip value that is based at least in part upon a motor output trip value.

6. The motor controller as recited in claim 5, wherein the controller automatically determines said motor input trip value based upon an entered motor output trip value.

7. The motor controller as recited in claim 1, wherein said interface selectively locks to prevent a user from changing a setting of the controller.

8. A machine assembly comprising:

a motor having associated values of motor output;

a device driven by said motor;

an input power setting determining module that automatically determines a motor input power setting, using the associated motor output values; and

a display portion that provides a visual display of the determined motor input power setting.

9. The machine assembly as recited in claim 8, wherein said values of motor output comprise a motor rating value.

10. The machine assembly as recited in claim 8, wherein said values of motor output comprise a motor efficiency value.

11. The machine assembly as recited in claim 8, wherein said device comprises a pump.

12. The machine assembly as recited in claim 8, including a trip module that automatically interrupts power to the motor responsive to an actual input power exceeding a motor input trip value that is based at least in part upon an entered motor output trip value.

13. The machine assembly as recited in claim 12, wherein the controller automatically determines said motor input trip value based upon an entered motor output trip value.

14. The machine assembly as recited in claim 8, including an interface for allowing a user to manually enter the associated values.

15. The machine assembly as recited in claim 14, wherein said interface selectively locks to prevent a user from changing a setting.

16. A method of determining a motor input power setting comprising the steps of:
receiving values of a motor output including at least one of a motor rating value or a motor efficiency value; and
automatically determining a motor input power setting based upon the received values of motor output.

17. The method as recited in claim 16, comprising displaying the determined motor input power setting.

18. The method as recited in claim 16, comprising manually entering the motor output values.

19. The method as recited in claim 16, comprising automatically determining an actual input power trip value responsive to a received motor output trip value and determining whether an actual input power corresponds to the trip value.

20. The method of Claim 16, comprising manually setting the motor input power setting responsive to observing the determined motor input power setting.

## EVIDENCE APPENDIX

None.

## RELATED PROCEEDINGS APPENDIX

None.